



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,933	12/22/2000	Charles L. Bruzzone	55376USA4A	3760

32692 7590 05/09/2003

3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427

EXAMINER

SHAFFER, RICKY D


ART UNIT

PAPER NUMBER

2872

DATE MAILED: 05/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/746,933	Applicant(s) BRUZZONE ET AL. 	
	Examiner Ricky D. Shafer	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 22-26 is/are pending in the application.
- 4a) Of the above claim(s) 3,8,14-19 and 22-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 9-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2872

1. Newly presented claim 26 is drawn to nonelected invention V, due to the fact that the claim recites particular details of the polarizing beam splitter. Since applicant has received an action on the merits for the originally present invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 26 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP 821.03.

2. Applicant's arguments filed 1/31/03 have been fully considered but they are not persuasive.

Applicant argues that the prior to Nagashima ('294), Bryars ('815), Bryars et al ('498) and Kuijper ('762) do not teach a Cartesian polarizing beam splitter. The examiner disagrees and is of the opinion that the polarizing beam splitter of Nagashima ('294), Bryars ('815), Bryars et al ('498) and Kuijper ('762) is inherently a Cartesian polarizing beam splitter due to the fact that the polarizing beam splitter splits an incident light into first and second substantially polarized beams, wherein the polarization states thereof are inherently referenced to some coordinate system. Note In re Ludtke, 169 USPQ 563 (CCPA 1971). In re Swinehart, 169 USPQ226 (CCPA 1971) and In re Spada, 15 USPQ 2d 1655, 1658 (Fed. Cir. 1990).

In addition, the examiner reminds applicant that an apparatus must be distinguished from the prior art in terms of structure rather than function. See In re Danley, 120 USPQ 528, 531 (CCPA 1959) and Hewlett-Packard Co. V. Bausch & Lomb Inc. 15 USPQ 2d 1525, 1528 (Fed. Cir 1990).

Art Unit: 2872

Applicant argues that the prior to Nagashima ('294), Bryars ('815), Bryars et al ('498), Kuijper ('762) and Knox ('626) do not teach that the axes of the polarizing beam splitter and the color separation prism are perpendicular. The examiner disagrees and is of the opinion that the respective figure(s) of Nagashima ('294), Bryars ('815), Bryars et al ('498), Kuijper ('762) and Knox ('626) clearly illustrate the axes of the polarizing beam splitter and the color separation prism being perpendicular in the same manner, as illustrated by applicant in Figures 1b and 2b.

In response to applicant's argument that there is no suggestion or motivation to combine the references Nagashima ('294), Bryars ('815), Bryars et al ('498), Kuijper ('762) or Knox ('626) in view of Duwaer et al ('248), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion or motivation to do so found either in the references themselves or In The Knowledge Generally Available To One Of Ordinary Skill In The Art. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596 (FED. CIR. 1988) and In re Jones, 958 F.2d 347, 21 U.S.P.Q. 2d 1941 (FED. CIR. 1992). In the case, the reference to Duwaer et al teaches employing illumination optics having a $f/\#$ equal to or less than 2.5, which would obviously convey to one of ordinary skill in the art the knowledge of brightness adjustability.

Furthermore, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference, nor is it that the claimed invention must be expressly suggested in anyone or all of the references, rather, the test is what

Art Unit: 2872

the combined teaching of the references, as a whole, would have suggested to those of ordinary skill in the art. See In re Keller, 642 F.2d 413, 208 U.S.P.Q. 871 (CCPA 1981).

Moreover, one cannot show nonobviousness by attacking the references individually, where the rejection is based on a combination of references. See In re Merck & Co., 800 F. 2d 1091, 231 U.S.P.Q. 375 (FED. CIR. 1986) and In re Keller, 642 F. 2d 413, 208 U.S.P.Q. 871 (CCPA 1981).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Nagashima ('294).

Nagashima discloses a projection system comprising an illumination system (22,23), a polarizing beam splitter (21), a color separation and recombination prism (11), a plurality of

Art Unit: 2872

polarization modulating imagers (12,13,14) and a projection lens (24), wherein the axes of the polarizing beam splitter and the color separation prism are perpendicular. Note fig. 1.

5. Claim 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Bryars ('815).

Bryars discloses a projection system comprising an illumination system (10), a polarizing beam splitter (20), a color separation and recombination prism (30), a plurality of polarization modulating imagers (90,110,130) and a projection lens (140), wherein the axes of the polarizing beam splitter and the color separation prism are perpendicular. Note figures 1, 6 and 17 and the associated description thereof.

6. Claim 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Bryars et al ('498).

Bryars et al discloses a projection system comprising an illumination system (102,105), a polarizing beam splitter (106), a color separation and recombination prism (10), a plurality of polarization modulating imagers (110,112,114) and a projection lens (118), wherein the axes of the polarizing beam splitter and the color separation prism are perpendicular. Note figures 2 and 4-6 and the associated description thereof.

7. Claim 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Kuijper ('762).

Kuijper discloses a projection system comprising an illumination system (5), a pre-polarizing light (7), a polarizing beam splitter (9), a color separation and recombination prism (17), a plurality of polarization modulating imagers (11,13,15) and a projection lens (29), wherein the axes of the polarizing beam splitter and the color separation prism are perpendicular. Note figures 1 and 3 and the associated description thereof.

Art Unit: 2872

8. Claim 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Knox ('626).

Knox discloses a projection system comprising an illumination system (210,270), a polarizing beam splitter (220), a color separation and recombination prism (330), a plurality of polarization modulating imagers (341,342,343) and a projection lens (260), wherein the axes of the polarizing beam splitter and the color separation prism are perpendicular. Note figures 13 and 17 and the associated description thereof.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 2, 4-7 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagashima ('294) in view of Duwaer et al ('248).

Nagashima discloses all of the subject matter claimed, note the above explanation, except for explicitly stating that the illumination system has a $f/\#$ less than or equal to 2.5.

Duwaer et al teaches it is well known to use an illumination system having a $f/\#$ less than or equal to 2.5 in the same field of endeavor for the purpose of producing a large cone of light.

Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the illumination system of Nagashima to include a typical illumination system having a $f/\#$ less than or equal to 2.5, as taught by Duwaer et

Art Unit: 2872

al in order to increase the brightness efficiency without sacrificing contrast or desirable brightness versus contrast ratio.

As to the limitations of claim 4, it is well known to employ a prepolarizer or clean-up polarizer before a polarizing beam splitter in the same field of endeavor for the purpose of enhancing the contrast ratio. Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the illumination system of Nagashima to include a prepolarizer or clean-up polarizer before the polarizing beam splitter as is commonly used and employed in the art in order to enhance the contrast ratio.

As to the limitations of claim 11, it is well known to employ APF multilayer polarizing beam splitters in the same field of endeavor for the purpose of enhancing the acceptance angle and/or the contrast ratio. Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the polarizing beam splitter of Nagashima to include a APF multilayer polarizing beam splitter as is commonly used and employed in the art in order to enhance the acceptance angle and/or the contrast ratio.

As to the limitations of claim 12, it is well known to employ LCOS imagers in the same field of endeavor for the purpose of reducing unwanted depolarization of light which thereby enhances the contrast ratio. Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the imagers of Nagashima to include a LCOS imagers as is commonly used and employed in the art in order to reduce unwanted depolarization of light which thereby enhances the contrast ratio.

Art Unit: 2872

11. Claims 1, 2, 4-7 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bryars ('815) or Bryars et al ('498) in view of Duwaer et al ('248).

Bryars and Bryars et al each disclose all of the subject matter claimed, note the above explanation, except for explicitly stating that the illumination system has a $f/\#$ less than or equal to 2.5.

Duwaer et al teaches it is well known to use an illumination system having a $f/\#$ less than or equal to 2.5 in the same field of endeavor for the purpose of producing a large cone of light.

Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the illumination system of Bryars or Bryars et al to include a typical illumination system having a $f/\#$ less than or equal to 2.5, as taught by Duwaer et al in order to increase the brightness efficiency without sacrificing contrast or desirable brightness versus contrast ratio.

As to the limitations of claim 4, it is well known to employ a prepolarizer or clean-up polarizer before a polarizing beam splitter in the same field of endeavor for the purpose of enhancing the contrast ratio. Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the illumination system of Bryars or Bryars et al to include a prepolarizer or clean-up polarizer before the polarizing beam splitter as is commonly used and employed in the art in order to enhance the contrast ratio.

As to the limitations of claim 11, it is well known to employ APF multilayer polarizing beam splitters in the same field of endeavor for the purpose of enhancing the acceptance angle

Art Unit: 2872

and/or the contrast ratio. Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the polarizing beam splitter of Bryars or Bryars et al to include a APF multilayer polarizing beam splitter as is commonly used and employed in the art in order to enhance the acceptance angle and/or the contrast ratio.

As to the limitations of claim 12, it is well known to employ LCOS imagers in the same field of endeavor for the purpose of reducing unwanted depolarization of light which thereby enhances the contrast ratio. Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the imagers of Bryars or Bryars et al to include a LCOS imagers as is commonly used and employed in the art in order to reduce unwanted depolarization of light which thereby enhances the contrast ratio.

12. Claims 1, 2, 4-7 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuijper ('762) in view of Duwaer et al ('248).

Kuijper discloses all of the subject matter claimed, note the above explanation, except for explicitly stating that the illumination system has a $f/\#$ less than or equal to 2.5.

Duwaer teaches it is well known to use an illumination system having a $f/\#$ less than or equal to 2.5 in the same field of endeavor for the purpose of producing a large cone of light.

Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the illumination system of Kuijper to include a typical illumination system having a $f/\#$ less than or equal to 2.5, as taught by Duwaer et al in

Art Unit: 2872

order to increase the brightness efficiency without sacrificing contrast or desirable brightness versus contrast ratio.

As to the limitations of claim 11, it is well known to employ APF multilayer polarizing beam splitters in the same field of endeavor for the purpose of enhancing the acceptance angle and/or the contrast ratio. Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the polarizing beam splitter of Kuijper to include a APF multilayer polarizing beam splitter as is commonly used and employed in the art in order to enhance the acceptance angle and/or the contrast ratio.

As to the limitations of claim 12, it is well known to employ LCOS imagers in the same field of endeavor for the purpose of reducing unwanted depolarization of light which thereby enhances the contrast ratio. Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the imagers of Kuijper to include a LCOS imagers as is commonly used and employed in the art in order to reduce unwanted depolarization of light which thereby enhances the contrast ratio.

13. Claims 1, 2, 4-7 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knox ('626) in view of Duwaer et al ('248).

Knox discloses all of the subject matter claimed, note the above explanation, except for explicitly stating that the illumination system has a $f/\#$ less than or equal to 2.5.

Duwaer teaches it is well known to use an illumination system having a $f/\#$ less than or equal to 2.5 in the same field of endeavor for the purpose of producing a large cone of light.

Art Unit: 2872

Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the illumination system of Knox to include a typical illumination system having a $f/\#$ less than or equal to 2.5, as taught by Duwaer et al in order to increase the brightness efficiency without sacrificing contrast or desirable brightness versus contrast ratio.

As to the limitations of claim 4, it is well known to employ a prepolarizer or clean-up polarizer before a polarizing beam splitter in the same field of endeavor for the purpose of enhancing the contrast ratio. Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the illumination system of Knox to include a prepolarizer or clean-up polarizer before the polarizing beam splitter as is commonly used and employed in the art in order to enhance the contrast ratio.

As to the limitations of claim 12, it is well known to employ LCOS imagers in the same field of endeavor for the purpose of reducing unwanted depolarization of light which thereby enhances the contrast ratio. Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the imagers of Knox as is commonly used and employed in the art in order to reduce unwanted depolarization of light which thereby enhances the contrast ratio.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

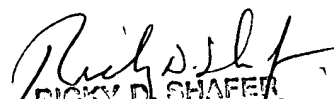
Art Unit: 2872

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication should be directed to R.D. Shafer at telephone number (703) 308- 4813.

RDS

May 5, 2003


RICKY D. SHAFER
PATENT EXAMINER
ART UNIT 2872